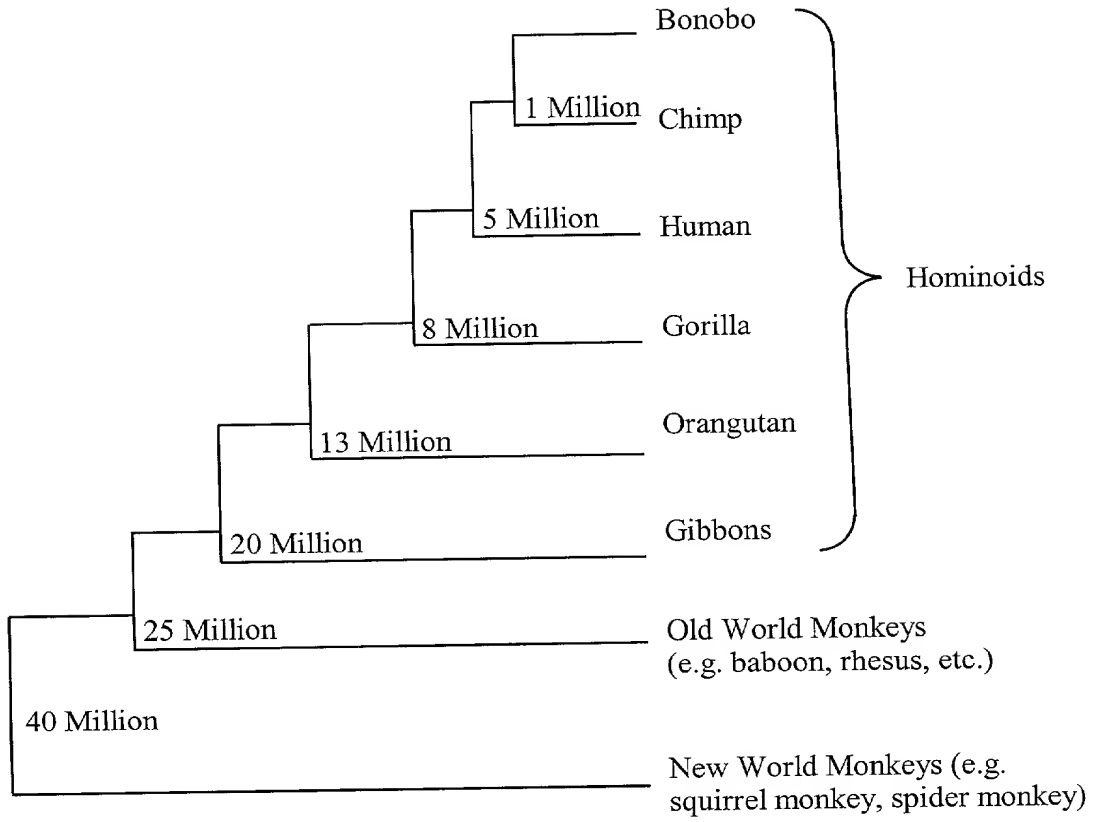
Bonobo
1 Million
Chimp
5 Million
Human
Hominoids
8 Million
Gorilla
Orangutan
13 Million
Gibbons
20 Million
25 Million
Old World Monkeys
(e.g. baboon, rhesus, etc.)
40 Million
New World Monkeys (e.g.
squirrel monkey, spider monkey)

Fig. 1


HUMAN: 1 CAGACATCTGTGTCCCCCTCAAAAGTCATCCTGCCCCGGGGAGGCTCCGTGCTGGTGACA
CHIMPANZEE: CAGACATCTGTGTCCCCCCCAAAAGTCATCCTGCCCCGGGGAGGCTCCGTGCAGGTGACA
Q T S V S P P K V I L P R G G S V Q V T
TGCAGCACCTCCTGTGACCAGCCCAAGTTGTTGGGCATAGAGACCCCGTTGCCTAAAAAG
TGCAGCACCTCCTGTGACCAGCCCGACTTGTTGGGCATAGAGACCCCGTTGCCTAAAAAG
C S T S C D Q P D L L G I E T P L P K K
HUMAN: 121 GAGTTGCTCCTGCCTGGGAACAACCGGAAGGTGTATGAACTGAGCAATGTGCAAGAAGAT
CHIMPANZEE: GAGTTGCTTCTGGGTGGGAACAACTGGAAGGTGTATGAACTGAGCAATGTGCAAGAAGAT
E L L L G G N N W K V Y E L S N V Q E D
AGCCAACCAATGTGCTATTCAAACTGCCCTGATGGGCAGTCAACAGCTAAAACCTTCCTC
AGCCAACCAATGTGCTATTCAAACTGCCCTGATGGGCAGTCAACAGCTAAAACCTTCCTC
S Q P M C Y S N C P D G Q S T A K T F L
HUMAN: 241 ACCGTGTACTGGACTCCAGAACGGGTGGAACTGGCACCCCTCCCCTCTTGGCAGCCAGTG
CHIMPANZEE: ACCGTGTACTGGACTCCAGAACGGGTGGAACTGGCACCCCTCCCCTCTTGGCAGCCAGTG
T V Y W T P E R V E L A P L P S W Q P V
GGCAAGAACCTTACCCTACGCTGCCAGGTGGAGGGTGGGGCACCCCGGGCCAACCTCACC
GGCAAGGACCTTACCCTACGCTGCCAGGTGGAGGGTGGGGCACCCCGGGCCAACCTCACC
G K D L T L R C Q V E G G A P R A N L T
HUMAN: 361 GTGGTGCTGCTCCGTGGGGAGAAGGAGCTGAAACGGGAGCCAGCTGTGGGGGAGCCCGCT
CHIMPANZEE: GTGGTGCTGCTCCGTGGGGAGAAGGAGCTGAAACGGGAGCCAGCTGTGGGGGAGCCCGCT
V V L L R G E K E L K R E P A V G E P A
GAGGTCACGACCACGGTGCTGGTGAGGAGAGATCACCATGGAGCCAATTTCTCGTGCCGC
GAGGTCACGACCACGGTGCTGGTGGAGAGAGATCACCATGGAGCCAATTTCTCGTGCCGC
E V T T T V L V E R D H H G A N F S C R

FIG. 2

FIG. 2 (CONT.)


HUMAN: 961 CAGCCACTGGGCCCGAGGGCCCAGCTCCTGCTGAAGGCCACCCCAGAGGACAACGGGCGC
CHIMPANZEE: CAGCCAGTGGGCCCGAGGGTCCAGCTCCTGCTGAAGGCCACCCCAGAGGACAACGGGCGC
Q P V G P R V Q L L L K A T P E D N G R
AGCTTCTCCTGCTCTGCAACCCTGGAGGTGGCCGGCCAGCTTATACACAAGAACCAGACC
AGCTTCTCCTGCTCTGCAACCCTGGAGGTGGCCGGCCAGCTTATACACAAGAACCAGACC
S F S C S A T L E V A G Q L I H K N Q T
HUMAN: 1081 CGGGAGCTTCGTGTCCTGTATGGCCCCCGACTGGACGAGAGGGATTGTCCGGGAAACTGG
CHIMPANZEE: CGGGAGCTTCGTGTCCTGTATGGCCCCCGACTGGACGAGAGGGATTGTCCGGGAAACTGG
R E L R V L Y G P R L D E R D C P G N W
ACGTGGCCAGAAAATTCCCAGCAGACTCCAATGTGCCAGGCTTGGGGGAACCCATTGCCC
ACGTGGCCAGAAAATTCCCAGCAGACTCCAATGTGCCAGGCTTCGGGGAACCCATTGCCC
T W P E N S Q Q T P M C Q A S G N P L P
HUMAN: 1201 GAGCTCAAGTGTCTAAAGGATGGCACTTTCCCACTGCCCATCGGGGAATCAGTGACTGTC
CHIMPANZEE: GAGCTCAAGTGTCTAAAGGATGGCACTTTCCCACTGCCCGTCGGGGAATCAGTGACTGTC
E L K C L K D G T F P L P V G E S V T V
ACTCGAGATCTTGAGGGCACCTACCTCTGTCGGGCCAGGAGCACTCAAGGGGAGGTCACC
ACTCGAGATCTTGAGGGCACCTACCTCTGTCGGGCCAGGAGCACTCAAGGGGAGGTCACC
T R D L E G T Y L C R A R S T Q G E V T
HUMAN: 1321 CGCGAGGTGACCGTGAATGTGCTCTCCCCCCGGTATGAGATTGTCATCATCACTGTGGTA
CHIMPANZEE: CGCAAGGTGACCGTGAATGTGCTCTCCCCCCGGTATGAGATTGTCATCATCACTGTGGTA
R K V T V N V L S P R Y E I V I I T V V
GCAGCCGCAGTCATAATGGGCACTGCAGGCCTCAGCACGTACCTCTATAACCGCCAGCGG
GCAGCCGCAGTCATAATGGGCACTGCAGGCCTCAGCACGTACCTCTATAACCGCCAGCGG
A A A V I M G T A G L S T Y L Y N R Q R

FIG. 2 (CONT.)

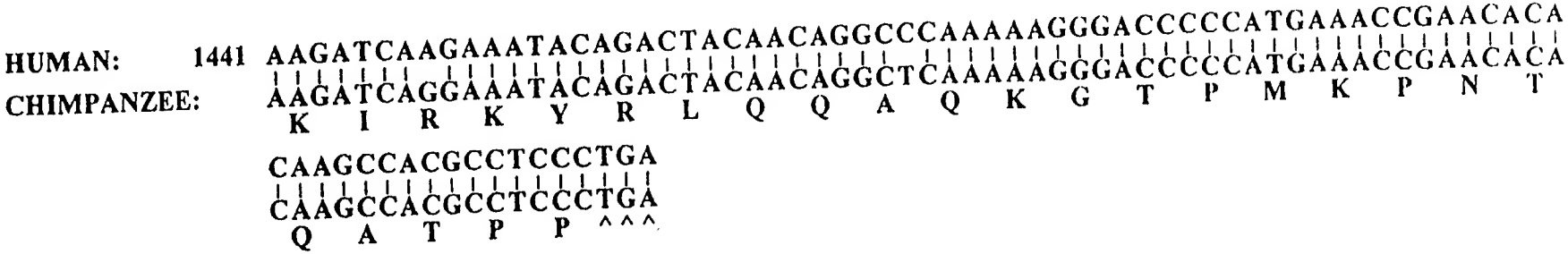
HUMAN: 1441 AAGATCAAGAAATACAGACTACAACAGGCCCAAAAAGGGACCCCCATGAAACCGAACACA
CHIMPANZEE: AAGATCAGGAAATACAGACTACAACAGGCTCAAAAAGGGACCCCCATGAAACCGAACACA
K I R K Y R L Q Q A Q K G T P M K P N T
CAAGCCACGCCTCCCTGA
CAAGCCACGCCTCCCTGA
Q A T P P ^^^

FIG. 2 (CONT.)

1515 ICAM GORILLA

```
CAG ACA TCT GTG TCC CCC CCA AAA GTC ATC CTG CCC CGG GGA GGC TCC GTG CTG GTG ACA
TGC AGC ACC TCC TGT GAC CAG CCC ACC TTG TTG GGC ATA GAG ACC CCG TTG CCT AAA AAG
GAG TTG CTC CTG CTT GGG AAC AAC CAG AAG GTG TAT GAA CTG AGC AAT GTG CAA GAA GAT
AGC CAA CCA ATG TGT TAT TCA AAC TGC CCT GAT GGG CAG TCA ACA GCT AAA ACC TTC CTC
ACC GTG TAC TGG ACT CCA GAA CGG GTG GAA CTG GCA CCC CTC CCC TCT TGG CAG CCA GTG
GGC AAG GAC CTT ACC CTA CGC TGC CAG GTG GAG GGT GGG GCA CCC CGG GCC AAC CTC ATC
GTG GTG CTG CTC CGT GGG GAG GAG GAG CTG AAA CGG GAG CCA GCT GTG GGG GAG CCC GCC
GAG GTC ACG ACC ACG GTG CCG GTG GAG AAA GAT CAC CAT GGA GCC AAT TTC TTG TGC CGC
ACT GAA CTG GAC CTG CGG CCC CAA GGG CTG AAG CTG TTT GAG AAC ACC TCG GCC CCC TAC
CAG CTC CAA ACC TTT GTC CTG CCA GCG ACT CCC CCA CAA CTT GTC AGC CCT CGG GTC CTA
GAG GTG GAC ACG CAG GGG ACT GTG GTC TGT TCC CTG GAC GGG CTG TTC CCA GTC TCG GAG
GCC CAG GTC CAC CTG GCA CTG GGG GAC CAG AGG TTG AAC CCC ACA GTC ACC TAT GGC AAC
GAC TCC TTC TCA GCC AAG GCC TCA GTC AGT GTG ACC GCA GAG GAC GAG GGC ACC CAG TGG
CTG ACG TGT GCA GTA ATA CTG GGG ACC CAG AGC CAG GAG ACA CTG CAG ACA GTG ACC ATC
TAC AGC TTT CCG GCA CCC AAC GTG ATT CTG ACG AAG CCA GAG GTC TCA GAA GGG ACC GAG
GTG ACA GTG AAG TGT GAG GCC CAC CCT AGA GCC AAG GTG ACA CTG AAT GGG GTT CCA GCC
CAG CCA CCG GGC CCG AGG ACC CAG TTC CTG CTG AAG GCC ACC CCA GAG GAC AAC GGG CGC
AGC TTC TCC TGC TCT GCA ACC CTG GAG GTG GCC GGC CAG CTT ATA CAC AAG AAC CAG ACC
CGG GAG CTT CGT GTC CTG TAT GGC CCC CGA CTG GAT GAG AGG GAT TGT CCG GGA AAC TGG
ACG TGG CCA GAA AAT TCC CAG CAG ACT CCA ATG TGC CAG GCT TGG GGG AAC CCA TTG CCC
GAG CTC AAG TGT CTA AAG GAT GGC ACT TTC CCA CTG CCC GTC GGG GAA TCA GTG ACT GTC
ACT CGA GAT CTT GAG GGC ACC TAC CTC TGT CGG GCC AGG AGC ACT CAA GGG GAG GTC ACC
CGC GAG GTG ACC GTG AAT GTG CTC TCC CCC CGG TAT GAG TTT GTC ATC ATC GCT GTG GTA
GCA GCC GCA GTC ATA ATG GGC ACT GCA GGC CTC AGC ACG TAC CTC TAT AAC CGC CAG CGG
AAG ATC AGG AAA TAC AGA CTA CAA CAG GCT CAA AAA GGG ACC CCC ATG AAA CCG AAC ACA
CAA GCC ACG CCT CCC
```

(SEQ ID NO: 4)

Fig. 3

```
 1515 ICAM        ORANG
CAC ACA TCT GTG TCC TCC GCC AAC GTC TTC CTG CCC CGG GGA GGC TCC GTG CTA GTG AAT
TGC AGC ACC TCC TGT GAC CAG CCC ACC TTG TTG GGC ATA GAG ACC CCG TTG CCT AAA AAG
GAG TTG CTC CCG GGT GGG AAC AAC TGG AAG ATG TAT GAA CTG AGC AAT GTG CAA GAA GAT
AGC CAA CCA ATG TGC TAT TCA AAC TGC CCT GAT GGG CAG TCA GCA GCT AAA ACC TTC CTC
ACC GTG TAC TGG ACT CCA GAA CGG GTG GAA CTG GCA CCC CTC CCC TCT TGG CAG CCA GTG
GGC AAG AAC CTT ACC CTA CGC TGC CAG GTG GAG GGT GGG GCA CCC CGG GCC AAC CTC ACC
GTG GTA TTG CTC CGT GGG GAG GAG GAG CTG AGC CGG CAG CCA GCG GTG GGG GAG CCC GCC
GAG GTC ACG GCC ACG GTG CTG GCG AGG AAA GAT GAC CAC GGA GCC AAT TTC TCG TGC CGC
ACT GAA CTG GAC CTG CGG CCC CAA GGG CTG GAG CTG TTT GAG AAC ACC TCG GCC CCC CAC
CAG CTC CAA ACC TTT GTC CTG CCA GCG ACT CCC CCA CAA CTT GTC AGC CCC CGG GTC CTA
GAG GTG GAC ACG CAG GGG ACC GTG GTC TGT TCC CTG GAC GGG CTG TTC CCA GTC TCG GAG
GCC CAG GTC CAC TTG GCA CTG GGG GAC CAG AGG TTG AAC CCC ACA GTC ACC TAT GGC GTC
GAC TCC CTC TCG GCC AAG GCC TCA GTC AGT GTG ACC GCA GAG GAG GAG GGC ACC CAG TGG
CTG TGG TGT GCA GTG ATA CTG AGG AAC CAG AGC CAG GAG ACA CGG CAG ACA GTG ACC ATC
TAC AGC TTT CCT GCA CCC AAC GTG ACT CTG ATG AAG CCA GAG GTC TCA GAA GGG ACC GAG
GTG ATA GTG AAG TGT GAG GCC CAC CCT GCA GCC AAC GTG ACG CTG AAT GGG GTT CCA GCC
CAG CCG CCG GGC CCG AGG GCC CAG TTC CTG CTG AAG GCC ACC CCA GAG GAC AAC GGG CGC
AGC TTC TCC TGC TCT GCA ACC CTG GAG GTG GCC GGC CAG CTT ATA CAC AAG AAC CAG ACC
CGG GAG CTT CGA GTC CTG TAT GGC CCC CGA CTG GAC GAG AGG GAT TGT CCG GGA AAC TGG
ACG TGG CCA GAA AAC TCC CAG CAG ACT CCA ATG TGC CAG GCT TGG GGG AAC CCC TTG CCC
GAG CTC AAG TGT CTA AAG GAT GGC ACT TTC CCA CTG CCC ATC GGG GAA TCA GTG ACT GTC
ACT CGA GAT CTT GAG GGC ACC TAC CTC TGT CGG GCC AGG AGC ACT CAA GGG GAG GTC ACC
CGC GAG GTG ACC GTG AAT GTG CTC TCC CCC CGG TAT GAG ATT GTC ATC ATC ACT GTG GTA
GCA GCC GCA GCC ATA CTG GGC ACT GCA GGC CTC AGC ACG TAC CTC TAT AAC CGC CAG CGG
AAG ATC AGG ATA TAC AGA CTA CAA CAG GCT CAA AAA GGG ACC CCC ATG AAA CCA AAC ACA
CAA ACC ACG CCT CCC
```

(SEQ ID NO:5)

Fig. 4

```
Human J03132        QTSVSPSKVI  LPRGGSVLVT  CSTSCDQPKL  LGIETPLPKK  ELLLPGNNRK
Human X06990        ..........  ..........  ..........  ..........  ..........
Human X59286-8      ..........  ..........  ..........  ..........  ..........
Human #4            ..........  ..........  ..........  ..........  ..........
Human #7            ..........  ..........  ..........  ..........  ..........
Human #8            ..........  ..........  ..........  ..........  ..........
Human M24283        ..........  ..........  ..........  ..........  ..........
Human U86814        ..........  ..........  ........M.  ..........  ..........
Chimp M86848        ......P...  .......Q..  ........D.  ..........  ....G...W.
Chimp #1            ......P...  .......Q..  ........D.  ..........  ....G...W.
Gorilla #1          ......P...  ..........  ........T.  ..........  ....L...Q.
Gorilla #2          ......P...  ..........  ........T.  ..........  ....L...Q.
Orang               H....SAN.F  .........N  ........T.  ..........  ...PG...W.

Human J03132        VYELSNVQED  SQPMCYSNCP  DGQSTAKTFL  TVYWTPERVE  LAPLPSWQPV
Human X06990        ..........  ..........  ..........  ..........  ..........
Human X59286-8      ..........  ..........  ..........  ..........  ..........
Human #4            ..........  ..........  ..........  ..........  ..........
Human #7            ..........  ..........  ..........  ..........  ..........
Human #8            ..........  ..........  ..........  ..........  ..........
Human M24283        ..........  ..........  ..........  ..........  ..........
Human U86814        ..........  ..........  ..........  ....??????  ??????????
Chimp M86848        ..........  ..........  ..........  ..........  ..........
Chimp #1            ..........  ..........  ..........  ..........  ..........
Gorilla #1          ..........  ..........  ..........  ..........  ..........
Gorilla #2          ..........  ..........  ..........  ..........  ..........
Orang               M.........  ..........  ....A.....  ..........  ..........

Human J03132        GKNLTLRCQV  EGGAPRANLT  VVLLRGEKEL  KREPAVGEPA  EVTTTVLVRR
Human X06990        ..........  ..........  ..........  ..........  ..........
Human X59286-8      ..........  ..........  ..........  ..........  ..........
Human #4            ..........  ..........  ..........  ..........  ..........
Human #7            ..........  ..........  ..........  ..........  ..........
Human #8            ..........  ..........  ..........  ..........  ..........
```

(SEQ ID NO:6)

Fig. 5A

Human M24283	.....	.....	.....	.....	.....
Human U86814	??????????	??????????	??????????	??????????	??????????
Chimp M86848	..D.....	.....	.....	.....	.....E.
Chimp #1	..D.....	.....	.....	.....	.....E.
Gorilla #1	..D.....	I	.....E..	.....	.....P.EK
Gorilla #2	..D.....	I	.....E..	.....	.....P.EK
Orang	.....	.....	.....E..	S.Q.....	...A...A.K

Human J03132	DHHGANFSCR	TELDLRPQGL	ELFENTSAPY	QLQTFVLPAT	PPQLVSPRVL
Human X06990	.....	.....	.....	.....	.....
Human X59286-8	.....	.....	.....	.....	.....
Human #4	.....	.....	.....	.....	.....
Human #7	.....	.....	.....	.....	.....
Human #8	.....	.....	.....	.....	.....
Human M24283	.....	.....	.....	.....	.....
Human U86814	??????????	??????????	??????????	??????????	??????????
Chimp M86848	.....	.....	Q.....H	.....	.....
Chimp #1	.....	.....	Q.....H	.....	.....
Gorilla #1	.....L..	.....	K.....	.....	.....
Gorilla #2	.....L..	.....	K.....	.....	.....
Orang	.D.....	.....	.....H	.....	.....

Human J03132	EVDTQGTVVC	SLDGLFPVSE	AQVHLALGDQ	RLNPTVTYGN	DSFSAKASVS
Human X06990	.....	.....	.....	.....	.....
Human X59286-8	.....	.....	.....	.....	.....
Human #4	.....	.....	.....	.....	.....
Human #7	.....	.....	.....	.....	.....
Human #8	.....	.....	.....	.....	.....
Human M24283	.....	.....	.....	.....	.....
Human U86814	??????????	??????????	??????????	??????????	??????????
Chimp M86848	.....	.....L.	.....	.....	.....
Chimp #1	.....	.....L.	.....	.....	.....
Gorilla #1	.....	.....	.....	.....	.....

Fig. 5B

Gorilla #2	.....	.....	.....	.....	.....
Orang	.....	.....	.....	V	..L.....

Human J03132	VTAEDEGTQR	LTCAVILGNQ	SQETLQTVTI	YSFPAPNVIL	TKPEVSEGTE
Human X06990	.....	.....	.....	.....	.....
Human X59286-8	.....	.....	.....	.....	.....
Human #4	.....	.....	.....	.....	.....
Human #7	.....	.....	.....	.....	.....
Human #8	.....	.....	.....	.....	.....
Human M24283	.....	.....	.....	.....	.....
Human U86814	??????????	??????????	??????????	??????????	??????????
Chimp M86848	.....	.....	.R.....	.....	.....
Chimp #1	.....	.....	.R.....	.....	.....
Gorilla #1	.....W	.....T.	.....	.....	.....
Gorilla #2	.....W	.....T.	.....	.....	.....
Orang	....E....W	.W.....R..	....R.....	.....T.	M.....

Human J03132	VTVKCEAHPR	AKVTLNGVPA	QPLGPRAQLL	LKATPEDNGR	SFSCSATLEV
Human X06990	.....	.....	.....	.....	.....
Human X59286-8	.....	.....	.....	.....	.....
Human #4	.....	.....	.....	.....	.....
Human #7	.....	.....	.....	.....	.....
Human #8	.....	.....	.....	.....	.....
Human M24283	.....	.....	.....	.....	.....
Human U86814	??????????	??????????	??????????	??????????	??????????
Chimp M86848	.....	.....	..V...V...	.....	.....
Chimp #1	.....	.....	..V...V...	.....	.....
Gorilla #1	.....	.....	..P...T.F.	.....	.....
Gorilla #2	.....	.....	..P...T.F.	.....	.....
Orang	.I.....A	.N.....	..P.....F.	.....	.....

Human J03132	AGQLIHKNQT	RELRVLYGPR	LDERDCPGNW	TWPENSQQTP	MCQAWGNPLP
Human X06990	.....	.....	.....	.....	.....

Fig. 5C

```
Human X59286-8    ..........  ..........  ..........  ..........  ..........
Human #4          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human M24283      ..........  ..........  ..........  ..........  ..........
Human U86814      ??????????  ??????????  ??????????  ??????????  ??????????
Chimp M86848      ..........  ..........  ..........  ..........  ....S.....
Chimp #1          ..........  ..........  ..........  ..........  ....S.....
Gorilla #1        ..........  ..........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  ..........  ..........  ..........
Orang             ..........  ..........  ..........  ..........  ..........

Human J03132      ELKCLKDGTF  PLPIGESVTV  TRDLEGTYLC  RARSTQGEVT  REVTVNVLSP
Human X06990      ..........  ..........  ..........  ..........  ..........
Human X59286-8    ..........  ..........  ..........  ..........  ..........
Human #4          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human M24283      ..........  ..........  ..........  ..........  .K........
Human U86814      ??????????  ??????????  ??????????  ??????????  ??????????
Chimp M86848      ..........  ...V......  ..........  ..........  .K........
Chimp #1          ..........  ...V.....   ..........  ..........  .K........
Gorilla #1        ..........  ...V......  ..........  ..........  ..........
Gorilla #2        ..........  ...V......  ..........  ..........  ..........
Orang             ..........  ..........  ..........  ..........  ..........

Human J03132      RYEIVIITVV  AAAVIMGTAG  LSTYLYNRQR  KIKKYRLQQA  QKGTPMKPNT
Human X06990      ..........  ..........  ..........  ..........  ..........
Human X59286-8    ..........  ..........  ..........  ..........  ..........
Human #4          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human M24283      ..........  ..........  ..........  ..........  ..........
Human U86814      ??????????  ??????????  ??????????  ??????????  ??????????
Chimp M86848      ..........  ..........  ..........  ..R.......  ..........
Chimp #1          ..........  ..........  ..........  ..R.......  ..........
```

Fig. 5D

```
Gorilla #1      ...F...A..  ..........  ..........  ..R.......  ..........
Gorilla #2      ...F...A..  ..........  ..........  ..R.......  ..........
Orang           ..........  ...A.L....  ..........  ..RI......  ..........

Human J03132    QATPP
Human X06990    .....
Human X59286-8  .....
Human #4        .....
Human #7        .....
Human #8        .....
Human M24283    .....
Human U86814    ?????
Chimp M86848    .....
Chimp #1        .....
Gorilla #1      .....
Gorilla #2      .....
Orang           .T...
```

Fig. 5E

```
Human M32331      SDEKVFEVHV  RPKKLAVEPK  GSLEVNCSTT  CNQPEVGGLE  TSLDKILLDE
Human #4          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human X15606      ..........  ..........  ..........  ..........  ...N......
Chimp #1          ..........  ..........  ...K......  ..........  ..........
Chimp #2          ..........  ..........  ...K......  ..........  ..........
Gorilla #2        ..........  ..........  A.........  ..........  ..........

Human M32331      QAQWKHYLVS  NISHDTVLQC  HFTCSGKQES  MNSNVSVYQP  PRQVILTLQP
Human #4          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human X15606      ..........  ..........  ..........  ..........  ..........
Chimp #1          ..........  ..........  ..........  ..........  ..........
Chimp #2          ..........  ..........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  ..........  ..........  ..........

Human M32331      TLVAVGKSFT  IECRVPTVEP  LDSLTLFLFR  GNETLHYETF  GKAAPAPQEA
Human #4          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human X15606      ..........  ..........  ..........  ..........  ..........
Chimp #1          ..........  ..........  ..........  ..........  ..........
Chimp #2          ..........  ..........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  ..........  ......NQ..  ......L...

Human M32331      TATFNSTADR  EDGHRNFSCL  AVLDLMSRGG  NIFHKHSAPK  MLEIYEPVSD
Human #4          ..........  ..........  ..........  ..........  ..........
Human #8          ..........  ..........  ..........  ..........  ..........
Human X15606      ..........  ..........  ..........  ..........  ..........
Chimp #1          .V........  D.........  ..........  ..........  ..........
Chimp #2          .V........  D.........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  .....I....  ...QE.....  ..........
```

(SEQ ID NO:7)

Fig. 6A

Human M32331	SQMVIIVTVV	SVLLSLFVTS	VLLCFIFGQH	LRQQRMGTYG	VRAAWRRLPQ
Human #4	....	....	....	....	....
Human #8	....	....	....	....	....
Human X15606	....	....	....	....	....
Chimp #1	....	....	....	....	....
Chimp #2	....	....	....	....	....
Gorilla #2	....	....	....	....	....

Human M32331	AFRP
Human #4	....
Human #8	....
Human X15606	....
Chimp #1	....
Chimp #2	....
Gorilla #2	....

Fig. 6B

Human X69819	QEFLLRVEPQ	NPVLSAGGSL	FVNCSTDCPS	SEKIALETSL	SKELVASGMG
Human #4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human #5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human #7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human S50015	. . . . .	. . . . .	. . . . .	F.	. . . . .
Chimp #3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Chimp #4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Chimp #5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Gorilla #1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Gorilla #2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Orang	. . . . .	. . . . P	L.	.K.	. . . . . DN. . .

Human X69819	WAAFNLSNVT	GNSRILCSVY	CNGSQITGSS	NITVYGLPER	VELAPLPPWQ
Human #4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human #5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human #7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human S50015	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Chimp #3	. . . . .	. . . . .	. . . . .	. . . . . R. . . .	. . . . .
Chimp #4	. . . . .	. . . . .	. . . . .	. . . . . R. . . .	. . . . .
Chimp #5	. . . . .	. . . . .	. . . . .	. . . . . R. . . .	. . . . .
Gorilla #1	. . . . .	. . . . .	. . . . .	. . . . . R. . . .	. . . . .
Gorilla #2	. . . . .	. . . . .	. . . . .	. . . . . R. . . .	. . . . .
Orang	. . . . Y.	. . . . .	. . . . . I. . .	. . . . . R. . . .	. . . . . L. .

Human X69819	PVGQNFTLRC	QVEGGSPRTS	LTVVLLRWEE	ELSRQPAVEE	PAEVTATVLA
Human #4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human #5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human #7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Human S50015	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Chimp #3	Q.	. . . . .	. . . . .	. . . . .	. . . . .
Chimp #4	Q.	. . . . .	. . . . .	. . . . .	. . . . .
Chimp #5	R.	. . . . .	. . . . .	. . . . .	. . . . .
Gorilla #1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . . P. . .
Gorilla #2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . . P. . .

(SEQ ID NO:8)

Fig. 7A

```
Human X69819      SRDDHGAPFS  CRTELDMQPQ  GLGLFVNTSA  PRQLRTFVLP  VTPPRLVAPR
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  ..........  ..........
Chimp #4          ..........  ..........  ..........  ..........  ..........
Chimp #5          ..........  ..........  ..........  ..........  ..........
Gorilla #1        ..G.......  ..........  ..........  ..........  M.........
Gorilla #2        ..G.......  ..........  ..........  ..........  M...S.....
Orang             ..GH...H..  ..........  ..........  ..........  ..........

Human X69819      FLEVETSWPV  DCTLDGLFPA  SEAQVYLALG  DQMLNATVMN  HGDTLTATAT
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  ..........  ..........
Chimp #4          ..........  ..........  ..........  ..........  ..........
Chimp #5          ..........  ..........  ..........  ..........  ..........
Gorilla #1        ..........  ..........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  ..........  ..........  ..........
Orang             ...A......  ..........  ..........  .........V.  ..........

Human X69819      ATARADQEGA  REIVCNVTLG  GERREARENL  TVFSFLGPIV  NLSEPTAHEG
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  .........T.  .......P..
```

Fig. 7B

```
Chimp #4          ..........  ..........  ..........  ........T.  .......P..
Chimp #5          ..........  ..........  ..........  ........T.  .......P..
Gorilla #1        ...L......  ..........  ..........  .I........  .......P..
Gorilla #2        ...L......  ..........  ..........  .I........  .......P..
Orang             .M........  Q.........  ..........  .........L  .....S.P..

Human X69819      STVTVSCMAG  ARVQVTLDGV  PAAAPGQPAQ  LQLNATESDD  GRSFFCSATL
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  ..........  R.........
Chimp #4          ..........  ..........  ..........  ..........  R.........
Chimp #5          ..........  ..........  ..........  ..........  R.........
Gorilla #1        ..........  ..........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  ..........  ..........  ..........
Orang             ..........  ..........  ..........  ..........  ..........

Human X69819      EVDGEFLHRN  SSVQLRVLYG  PKIDRATCPQ  HLKWKDKTRH  VLQCQARGNP
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  .........T  ..........
Chimp #4          ..........  ..........  ..........  .........T  ..........
Chimp #5          ..........  ..........  ..........  .........T  ..........
Gorilla #1        ..........  ..........  ..........  .........T  ..........
Gorilla #2        ..........  ..........  ..........  .........T  ..........
Orang             ......F...  ..........  ..........  ..........  ..........

Human X69819      YPELRCLKEG  SSREVPVGIP  FFVNVTHNGT  YQCQASSSRG  KYTLVVVMDI
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  ..........
Human #7          ..........  ..........  ..........  ..........  ..........
```

Fig. 7C

```
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  ..........  ..........
Chimp #4          ..........  ..........  ..........  ..........  ..........
Chimp #5          ..........  ..........  ..........  ..........  ..........
Gorilla #1        ..........  ..........  ..........  ..........  ..........
Gorilla #2        ..........  ..........  ..........  ..........  ..........
Orang             H.........  ..........  ..........  ..........  R.........

Human X69819      EAGSSHFVPV  FVAVLLTLGV  VTIVLALMYV  FREHQRSGSY  HVREESTYLP
Human #4          ..........  ..........  ..........  ..........  ..........
Human #5          ..........  ..........  ..........  ..........  .....T....
Human #7          ..........  ..........  ..........  ..........  ..........
Human S50015      ..........  ..........  ..........  ..........  ..........
Chimp #3          ..........  ..........  ..........  ....K.....  ..........
Chimp #4          ..........  ..........  ..........  ....K.....  ..........
Chimp #5          ..........  ..........  ..........  ....K.....  ..........
Gorilla #1        ..........  ..........  ..........  ....K.....  ..........
Gorilla #2        ..........  ..........  ..........  ....K.....  ..........
Orang             ...N....L.  .L...V....  ..V.V.....  ....K...R.  ...Q...S..

Human X69819      LTSMQPTEAM  GEEPSRAE
Human #4          ..........  ........
Human #5          ..........  ........
Human #7          ..........  ........
Human S50015      ..........  ........
Chimp #3          .......Q..  ........
Chimp #4          .......Q..  ........
Chimp #5          ..........  ........
Gorilla #1        ..........  ........
Gorilla #2        ..........  ........
Orang             ..........  .....T..
```

Fig. 7D

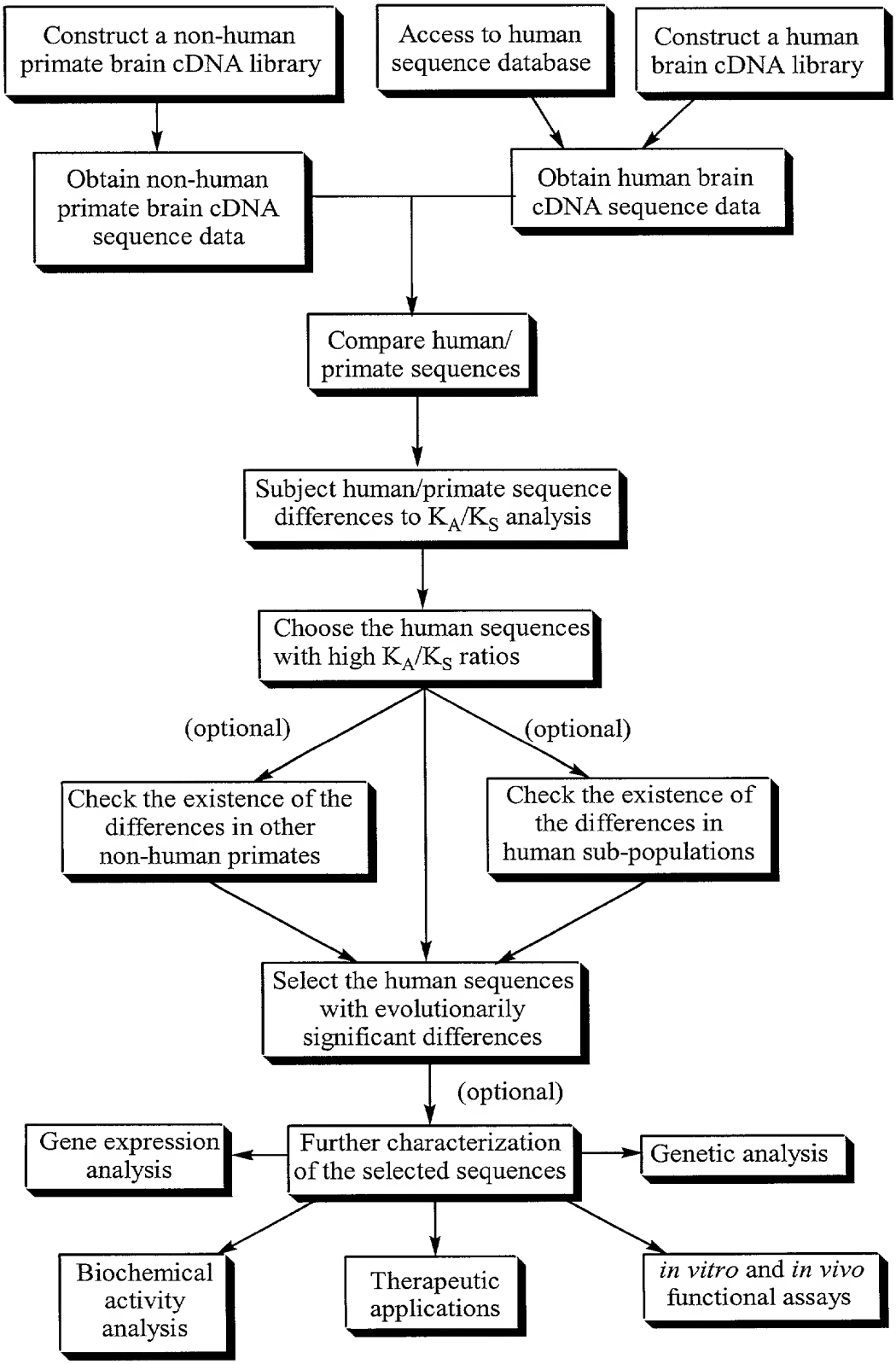
Construct a non-human primate brain cDNA library
Access to human sequence database
Construct a human brain cDNA library
Obtain non-human primate brain cDNA sequence data
Obtain human brain cDNA sequence data
Compare human/ primate sequences
Subject human/primate sequence differences to K_A/K_S analysis
Choose the human sequences with high K_A/K_S ratios
(optional)
(optional)
Check the existence of the differences in other non-human primates
Check the existence of the differences in human sub-populations
Select the human sequences with evolutionarily significant differences
(optional)
Gene expression analysis
Further characterization of the selected sequences
Genetic analysis
Biochemical activity analysis
Therapeutic applications
in vitro and *in vivo* functional assays

Fig. 8

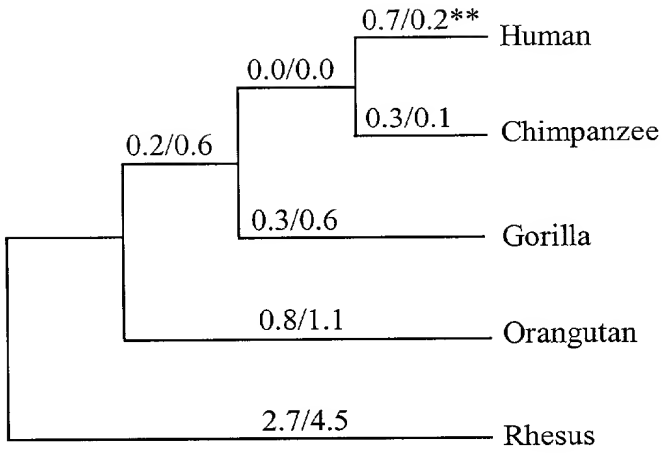
0.7/0.2**
Human
0.0/0.0
0.3/0.1
Chimpanzee
0.2/0.6
0.3/0.6
Gorilla
0.8/1.1
Orangutan
2.7/4.5
Rhesus

Fig. 9

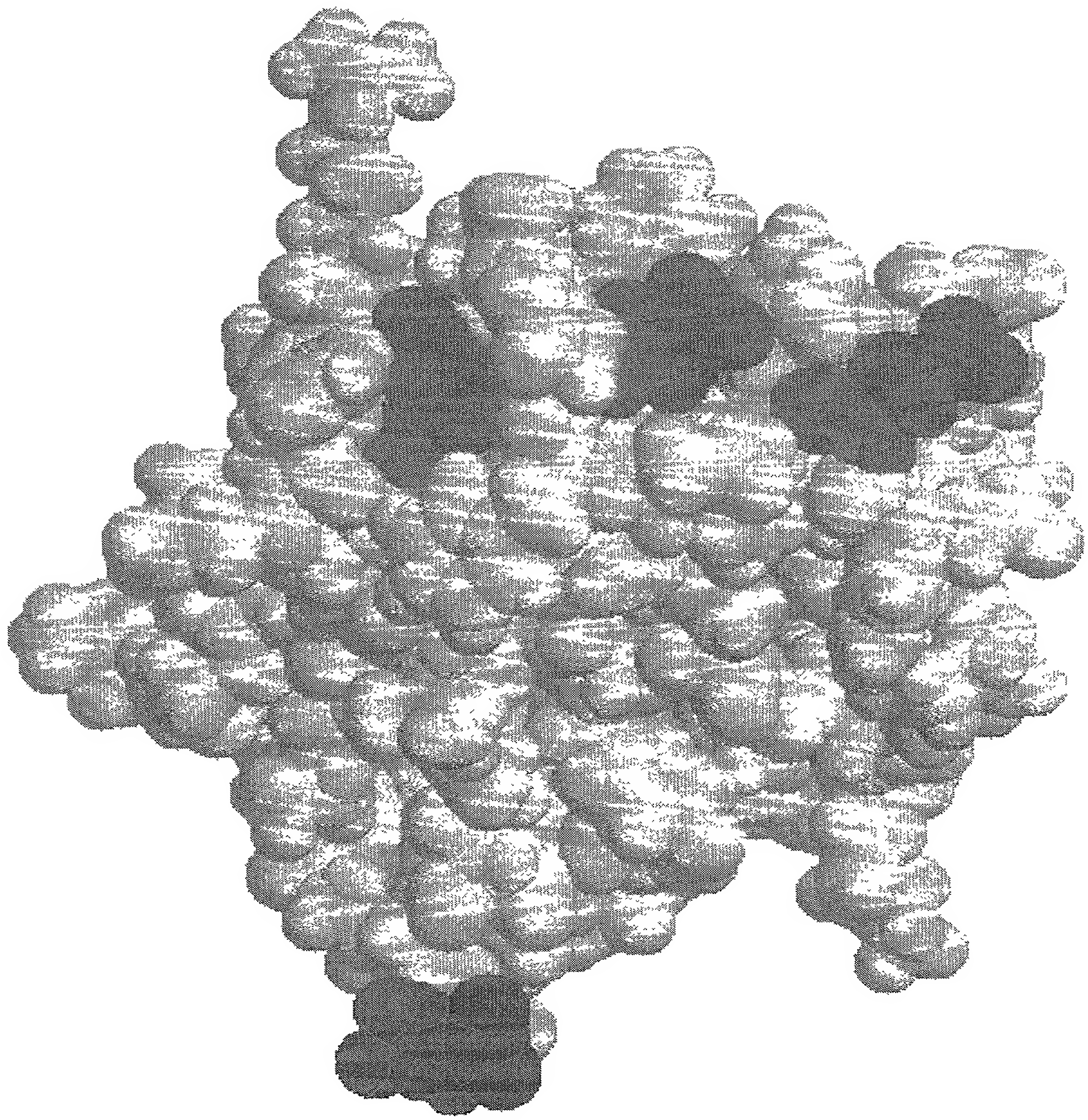

Fig. 10

Human

ATGAGTGACTCCAAGGAACCAAGACTGCAGCAGCTGGGCCTCCTGGAGGAGGAACA
GCTGAGAGGCCTTGGATTCCGACAGACTCGAGGATACAAGAGCTTAGCAGGGTGTC
TTGGCCATGGTCCCCTGGTGCTGCAACTCCTCTCCTTCACGCTCTTGGCTGGGCTCCT
TGTCCAAGTGTCCAAGGTCCCCAGCTCCATAAGTCAGGAACAATCCAGGCAAGACG
CGATCTACCAGAACCTGACCCAGCTTAAAGCTGCAGTGGGTGAGCTCTCAGAGAAA
TCCAAGCTGCAGGAGATCTACCAGGAGCTGACCCAGCTGAAGGCTGCAGTGGGTGA
GCTTCCAGAGAAATCTAAGCTGCAGGAGATCTACCAGGAGCTGACCCGGCTGAAGG
CTGCAGTGGGTGAGCTTCCAGAGAAATCTAAGCTGCAGGAGATCTACCAGGAGCTG
ACCTGGCTGAAGGCTGCAGTGGGTGAGCTTCCAGAGAAATCTAAGATGCAGGAGAT
CTACCAGGAGCTGACTCGGCTGAAGGCTGCAGTGGGTGAGCTTCCAGAGAAATCTA
AGCAGCAGGAGATCTACCAGGAGCTGACCCGGCTGAAGGCTGCAGTGGGTGAGCTT
CCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGACCCGGCTGAAGGCTGC
AGTGGGTGAGCTTCCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGACC
CAGCTGAAGGCTGCAGTGGAACGCCTGTGCCACCCCTGTCCCTGGGAATGGACATT
CTTCCAAGGAAACTGTTACTTCATGTCTAACTCCCAGCGGAACTGGCACGACTCCAT
CACCGCCTGCAAAGAAGTGGGGGCCCAGCTCGTCGTAATCAAAAGTGCTGAGGAGC
AGAACTTCCTACAGCTGCAGTCTTCCAGAAGTAACCGCTTCACCTGGATGGGACTTT
CAGATCTAAATCAGGAAGGCACGTGGCAATGGGTGGACGGCTCACCTCTGTTGCCC
AGCTTCAAGCAGTATTGGAACAGAGGAGAGCCCAACAACGTTGGGGAGGAAGACTG
CGCGGAATTTAGTGGCAATGGCTGGAACGACGACAAATGTAATCTTGCCAAATTCTG
GATCTGCAAAAAGTCCGCAGCCTCCTGCTCCAGGGATGAAGAACAGTTTCTTTCTCC
AGCCCCTGCCACCCCAAACCCCCCTCCTGCG (SEQ. ID. NO. 9)

Fig. 11

Chimpanzee

ATGAGTGACTCCAAGGAACCAAGACTGCAGCAGCTGGGCCTCCTGGAGGAGGAACA
GCTGAGAGGCCTTGGATTCCGACAGACTCGAGGCTACAAGAGCTTAGCAGGGTGTC
TTGGCCATGGTCCCCTGGTGCTGCAACTCCTCTCCTTCACGCTCTTGGCTGGGCTCCT
TGTCCAAGTGTCCAAGGTCCCCAGCTCCATAAGTCAGGAAGAATCCAGGCAAGACG
TGATCTACCAGAACCTGACCCAGCTTAAAGCTGCAGTGGGTGAGCTCTCAGAGAAA
TCCAAGCTGCAGGAGATCTACCAGGAGCTGACCCAGCTGAAGGCTGCAGTGGGTGA
GCTTCCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGACCCGGCTGAAGG
CTGCAGTGGGTGAGCTTCCAGAGAAATCTAAGATGCAGGAGATCTACCAGGAGCTG
ACTCGGCTGAAGGCTGCAGTGGGTGAGCTTCCAGAGAAATCTAAGATGCAGGAGAT
CTACCAGGAGCTGACTCGGCTGAAGGCTGCAGTGGGTGAGCTTCCAGAGAAATCTA
AGCAGCAGGAGATCTACCAGGAGCTGACCCAGCTGAAGGCTGCAGTGGGTGAGCTT
CCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGACCCAGCTGAAGGCTGC
AGTGGGTGAGCTTCCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGACC
CGGCTGAAGGCTGCAGTGGAACGCCTGTGCCGCCGCTGCCCCTGGGAATGGACATT
CTTCCAAGGAAACTGTTACTTCATGTCTAACTCCCAGCGGAACTGGCACGACTCCAT
CACTGCCTGCAAAGAAGTGGGGGCCCAGCTCGTCGTAATCAAAAGTGCTGAGGAGC
AGAACTTCCTACAGCTGCAGTCTTCCAGAAGTAACCGCTTCACCTGGATGGGACTTT
CAGATCTAAATGAGGAAGGCATGTGGCAATGGGTGGACGGCTCACCTCTGTTGCCC
AGCTTCAACCAGTAYTGGAACAGAGGAGAGCCCAACAACGTTGGGGAGGAAGACTG
CGCGGAATTTAGTGGCAATGGCTGGAATGACGACAAATGTAATCTTGCCAAATTCTG
GATCTGCAAAAAGTCCGCAGCCTCCTGCTCCAGGGATGAAGAACAGTTTCTTTCTCC
AGCCCCTGCCACCCCAAACCCCCCTCCTGCG (SEQ. ID. NO. 10)

Fig. 12

Gorilla

ATGAGTGACTCCAAGGAACCAAGACTGCAGCAGCTGGGCCTCCTGGAGGAGGAACA
GCTGAGAGGCCTTGGATTCCGACAGACTCGAGGCTACAAGAGCTTAGCAGGGTGTC
TTGGCCATGGTCCCCTGGTGCTGCAACTCCTCTCCTTCACGCTCTTGGCTGCGCTCCT
TGTCCAAGTGTCCAAGGTCCCCAGCTCCATAAGTCAGGAACAATCCAGGCAAGACG
CGATCTACCAGAACCTGACCCAGTTTAAAGCTGCAGTGGGTGAGCTCTCAGAGAAA
TCCAAGCTGCAGGAGATCTATCAGGAGCTGACCCAGCTGAAGGCTGCAGTGGGTGA
GCTTCCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGAGCCAGCTGAAGG
CTGCAGTGGGTGAGCTTCCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTG
ACCCGGCTGAAGGCTGCAGTGGGTGAGCTTCCAGAGAAATCTAAGCAGCAGGAGAT
CTACCAGGAGCTGACCCGGCTGAAGGCTGCAGTGGGTGAGCTTCCAGAGAAATCTA
AGCAGCAGGAGATCTACCAGGAGCTGAGCCAGCTGAAGGCTGCAGTGGGTGAGCTT
CCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGAGCCAGCTGAAGGCTGC
AGTGGGTGAGCTTCCAGAGAAATCTAAGCAGCAGGAGATCTACCAGGAGCTGACC
CAGCTGAAGGCTGCAGTGGAACGCCTGTGCCGCCGCTGCCCCTGGGAATGGACATT
CTTCCAAGGAAACTGTTACTTCATGTCTAACTCCCAGCGGAACTGGCACGACTCCAT
CACCGCCTGCCAAGAAGTGGGGGCCCAGCTCGTCGTAATCAAAAGTGCTGAGGAGC
AGAACTTCCTACAGCTGCAGTCTTCCAGAAGTAACCGCTTCACCTGGATGGGACTTT
CAGATCTAAATCATGAAGGCACGTGGCAATGGGTGGACGGCTCACCTCTGTTGCCC
AGCTTCGAGCAGTATTGGAACAGAGGAGAGCCCAACAACGTTGGGGAGGAAGACTG
CGCGGAATTTAGTGGCAATGGCTGGAACGATGACAAATGTAATCTTGCCAAATTCTG
GATCTGCAAAAAGTCTGCAGCCTCCTGCTCCAGGGATGAAGAACAGTTTCTTTCTCC
AGCCTCTGCCACCCCAAACCCCCCTCCTGCG (SEQ. ID. NO. 11)

Fig. 13

```
1    ctccagacct acccagaaag atgcccggat ggatcctgca gctccgtggc ttttctggga
61   agcagcggcc cctgctctca agagaccctg gctcctgatg gtggccccaa ggttgccagc
121  tggtgctagg gactcaggac agtttcccag aaaaggccaa gcgggcagcc cctccagggg
181  ccgggtgagg aagctggggg gtgcggaggc cacactgggt ccctgaaccc cctgcttggt
241  tacagtgcag ctcctcaagt ccacagacgt gggccggcac agcctcctgt acctgaagga
301  aatcggccgt ggctggttcg ggaaggtgtt cctgggggag gtgaactctg gcatcagcag
361  tgcccaggtg gtggtgaagg agctgcaggc tagtgccagc gtgcaggagc agatgcagtt
421  cctggaggag gtgcagccct acagggccct gaagcacagc aacctgctcc agtgcctggc
481  ccagtgcgcc gaggtgacgc cctacctgct ggtgatggag ttctgcccac tgggggacct
541  caagggctac ctgcggagct gccgggtggc ggagtccatg gctcccgacc cccggaccct
601  gcagcgcatg gcctgtgagg tggcctgtgg cgtcctgcac cttcatcgca acaatttcgt
661  gcacagcgac ctggccctgc ggaactgcct gctcacggct gacctgacgg tgaagattgg
721  tgactatggc ctggctcact gcaagtacag agaggactac ttcgtgactg ccgaccagct
781  gtgggtgcct ctgcgctgga tcgcgccaga gctggtggac gaggtgcata gcaacctgct
841  cgtcgtggac cagaccaaga gcgggaatgt gtggtccctg ggcgtgacca tctgggagct
901  ctttgagctg ggcacgcagc cctatcccca gcactcggac cagcaggtgc tggcgtacac
961  ggtccgggag cagcagctca agctgcccaa gccccagctg cagctgaccc tgtcggaccg
1021 ctggtacgag gtgatgcagt tctgctggct gcagcccgag cagcggccca cagccgagga
1081 ggtgcacctg ctgctgtcct acctgtgtgc caagggcgcc accgaagcag aggaggagtt
1141 tgaacggcgc tggcgctctc tgcggcccgg cgggggcggc gtggggcccg ggcccggtgc
1201 ggcggggccc atgctgggcg gcgtggtgga gctcgccgct gcctcgtcct tcccgctgct
1261 ggagcagttc gcgggcgacg gcttccacgc ggacggcgac gacgtgctga cggtgaccga
1321 gaccagccga ggcctcaatt ttgagtacaa gtgggaggcg ggccgcggcg cggaggcctt
1381 cccggccacg ctgagccctg gccgcaccgc acgcctgcag gagctgtgcg cccccgacgg
1441 cgcgcccccg ggcgtggttc cggtgctcag cgcgcacagc ccgtcgctgg gcagcgagta
1501 cttcatccgc ctagaggagg ccgcacccgc cgccggccac gaccctgact gcgccggctg
1561 cgcccccagt ccacctgcca ccgcggacca ggacgacgac tctgacggca gcaccgccgc
1621 ctcgctggcc atggagccgc tgctgggcca cgggccaccc gtcgacgtcc cctggggccg
1681 cggcgaccac taccctcgca gaagcttggc gcgggacccg ctctgccccc cacgctctcc
1741 ctcgccctcg gcggggcccc tgagtctggc ggagggagga gcggaggatg cagactgggg
1801 cgtggccgcc ttctgtcctg ccttcttcga ggacccactg ggcacgtccc ctttggggag
1861 ctcaggggcg cccccgctgc cgctgactgg cgaggatgag ctagaggagg tgggagcgcg
1921 gagggccgcc cagcgcgggc actggcgctc caacgtgtca gccaacaaca acagcggcag
1981 ccgctgtcca gagtcctggg accccgtctc tgcgggctgc cacgctgagg gctgccccag
2041 tccaaagcag accccacggg cctccccccga gccggggtac cctggagagc ctctgcttgg
2101 gctccaggca gcctctgccc aggagccagg ctgctgcccc ggcctccctc atctatgctc
2161 tgcccagggc ctggcacctg ctccctgcct ggttacaccc tcctggacag agacagccag
2221 tagtgggggt gaccacccgc aggcagagcc caagcttgcc acggaggctg agggcactac
2281 cggaccccgc ctgccccttc cttccgtccc ctccccatcc caggagggag ccccacttcc
2341 ctcggaggag gccagtgccc ccgacgcccc tgatgccctg cctgactctc ccacgcctgc
2401 tactggtggc gaggtgtctg ccatcaagct ggcttctgcc ctgaatggca gcagcagctc
2461 tcccgaggtg gaggcaccca gcagtgagga tgaggacacg gctgaggcca cctcaggcat
2521 cttcaccgac acgtccagcg acggcctgca ggccaggagg ccggatgtgg tgccagcctt
2581 ccgctctctg cagaagcagg tggggacccc cgactccctg gactccctgg acatcccgtc
2641 ctcagccagt gatggtggct atgaggtctt cagcccgtcg gccactggcc cctctggagg
2701 gcagccgcga gcgctggaca gtggctatga caccgagaac tatgagtccc ctgagtttgt
2761 gctcaaggag gcgcaggaag ggtgtgagcc ccaggccttt gcggagctgg cctcagaggg
2821 tgagggcccc gggcccgaga cacggctctc cacctccctc agtggcctca acgagaagaa
2881 tccctaccga gactctgcct acttctcaga cctcgaggct gaggccgagg ccacctcagg
2941 cccagagaag aagtgcggcg gggaccgagc ccccgggcca gagctgggcc tgccgagcac
3001 tgggcagccg tctgagcagg tctgtctcag gcctggggtt tccggggagg cacaaggctc
```

Figure 14A

3061 tggccccggg gaggtgctgc ccccactgct gcagcttgaa gggtcctccc cagagcccag
3121 cacctgcccc tcgggcctgg tcccagagcc tccggagccc caaggcccag ccaaggtgcg
3181 gcctgggccc agccccagct gctcccagtt tttcctgctg accccggttc cgctgagatc
3241 agaaggcaac agctctgagt tccaggggcc cccaggactg ttgtcagggc cggccccaca
3301 aaagcggatg gggggcccag gcacccccag agccccactc cgcctggctc tgcccggcct
3361 ccctgcggcc ttggagggcc ggccggagga ggaggaggag gacagtgagg acagcgacga
3421 gtctgacgag gagctccgct gctacagcgt ccaggagcct agcgaggaca gcgaagagga
3481 ggcgccggcg gtgcccgtgg tggtggctga gagccagagc gcgcgcaacc tgcgcagcct
3541 gctcaagatg cccagcctgc tgtccgagac cttctgcgag gacctggaac gcaagaagaa
3601 ggccgtgtcc ttcttcgacg acgtcaccgt ctacctcttt gaccaggaaa gccccacccg
3661 ggagctcggg gagcccttcc cgggcgccaa ggaatcgccc cctacgttcc ttaggggggag
3721 ccccggctct cccagcgccc ccaaccggcc gcagcaggct gatggctccc caaatggctc
3781 cacagcggaa gagggtggtg ggttcgcgtg ggacgacgac ttcccgctga tgacggccaa
3841 ggcagccttc gccatggccc tagacccggc cgcacccgcc ccggctgcgc ccacgcccac
3901 gcccgctccc ttctcgcgct tcacggtgtc gcccgcgccc acgtcccgct tctccatcac
3961 gcacgtgtct gactcggacg ccgagtccaa gagaggacct gaagctggtg ccgggggtga
4021 gagtaaagag gct**tga**gacc tgggcagctc ctgcccctca aggctggcgt caccggagcc
4081 cctgccaggc agcagcgagg atggtgaccg agaaggtggg gaccacgtcc tggtggctgt
4141 tggcagcaga ttcaggtgcc tctgccccac gcggtgtcct ggagaagccc gtgggatgag
4201 aggccctgga tggtagatcg gccatgctcc gccccagagg cagaattcgt ctgggctttt
4261 aggcttgctg ctagcccctg ggggcgcctg gagccacagt gggtgtctgt acacacatac
4321 acactcaaaa ggggccagtg cccctgggca cggcggcccc caccctctgc cctgcctgcc
4381 tggcctcgga ggacccgcat gccccatccg gcagctcctc cggtgtgctc acaggacact
4441 taaaccagga cgaggcatgg ccccgagaca ctggcaggtt tgtgagcctc ttcccacccc
4501 ctgtgccccc acccttgcct ggttcctggt ggctcagggc aaggagtggc cctgggcgcc
4561 cgtgtcggtc ctgtttccgc tgcccttatc tcaaagtccg tggctgtttc cccttcactg
4621 actcagctag acccgtaagc ccacccttcc cacagggaac aggctgctcc cacctgggtc
4681 ccgctgtggc cacggtgggc agcccaaaag atcaggggtg gaggggcttc caggctgtac
4741 tcctgccccg tgggccccgt tctagaggtg cccttggcag gaccgtgcag gcagctcccc
4801 tctgtggggc agtatctggt cctgtgcccc agctgccaaa ggagagtggg ggccatgccc
4861 cgcagtcagt gttggggggc tcctgcctac agggagaggg atggtgggga aggggtggag
4921 ctgggggcag ggcagcacag ggaatatttt tgtaactaac taactgctgt ggttggagcg
4981 aatggaagtt gggtgatttt aagttattgt tgccaaagag atgtaaagtt tattgttgct
5041 tcgcaggggg atttgttttg tgttttgttt gaggcttaga acgctggtgc aatgttttct
5101 tgttccttgt tttttaagag aaatgaagct aagaaaaaag (SEQ ID NO: 14 and 15)

Figure 14A (continued)

MQFLEEVQPYRALKHSNLLQCLAQCAEVTPYLLVMEFCPLGDLKGYLRSCRVAESMAP
DPRTLQRMACEVACGVLHLHRNNFVHSDLALRNCLLTADLTVKIGDYGLAHCKYRED
YFVTADQLWVPLRWIAPELVDEVHSNLLVVDQTKSGNVWSLGVTIWELFELGTQPYPQ
HSDQQVLAYTVREQQLKLPKPQLQLTLSDRWYEVMQFCWLQPEQRPTAEEVHLLLSYL
CAKGATEAEEEFERRWRSLRPGGGGVGPGPGAAGPMLGGVVELAAAASSFPLLEQFAGD
GFHADGDDVLTVTETSRGLNFEYKWEAGRGAEAFPATLSPGRTARLQELCAPDGAPPG
VVPVLSAHSPSLGSEYFIRLEEAAPAAGHDPDCAGCAPSPPATADQDDDSDGSTAASLA
MEPLLGHGPPVDVPWGRGDHYPRRSLARDPLCPSRSPSPSAGPLSLAEGGAEDADWGV
AAFCPAFFEDPLGTSPLGSSGAPPLPLTGEDELEEVGARRAAQRGHWRSNVSANNNSGS
RCPESWDPVSAGCHAEGCPSPKQTPRASPEPGYPGEPLLGLQAASAQEPGCCPGLPHLCS
AQGLAPAPCLVTPSWTETASSGGDHPQAEPKLATEAEGTTGPRLPLPSVPSPSQEGAPLP
SEEASAPDAPDALPDSPTPATGGEVSAIKLASALNGSSSSPEVEAPSSEDEDTAEATSGIFT
DTSSDGLQARRPDVVPAFRSLQKQVGTPDSLDSLDIPSSASDGGYEVFSPSATGPSGGQP
RALDSGYDTENYESPEFVLKEAQEGCEPQAFAELASEGEGPGPETRLSTSLSGLNEKNPY
RDSAYFSDLEAEAEATSGPEKKCGGDRAPGPELGLPSTGQPSEQVCLRPGVSGEAQGSG
PGEVLPPLLQLEGSSPEPSTCPSGLVPEPPEPQGPAKVRPGPSPSCSQFFLLTPVPLRSEGN
SSEFQGPPGLLSGPAPQKRMGGPGTPRAPLRLALPGLPAALEGRPEEEEEDSEDSDESDE
ELRCYSVQEPSEDSEEEAPAVPVVVAESQSARNLRSLLKMPSLLSETFCEDLERKKKAVS
FFDDVTVYLFDQESPTRELGEPFPGAKESPPTFLRGSPGSPSAPNRPQQADGSPNGSTAEE
GGGFAWDDDFPLMTAKAAFAMALDPAAPAPAAPTPTPAPFSRFTVSPAPTSRFSITHVS
DSDAESKRGPEAGAGGESKEA (SEQ ID NO:16)

Figure 14B

GCTCCCTGCCTGGTTACACCCTCCTGGACAGAGACAGCCGGTAGTGGGGGTGACCACCCGCAGGCAGAGCC
CAAGCTTGCCACGGAGGCTGAGGGCACTGCCGGACCCTGTCTGCCCCTTCCTTCCGTCCCCTCCCCATCCC
AGGAGGGAGCCCCACTTCCCTCGGAGGAGGCCAGTGCCCCTGACGCCCCTGATGCCCTGCCTGACTCTCCC
ATGCCTGCTACTGGTGGCGAGGTGTCTGCCATCAAGCTGGCTTCTGTCCTGAATGGCAGCAGCAGCTCTCC
CGAGGTGGAGGCACCCAGCAGCGAGGATGAGGACACGGCTGAGGCCACCTCAGGCATCTTCACCGACACGT
CCAGCGACGGCCTGCAGGCCGAGAGGCTGGATGTGGTGCCAGCCTTCCGCTCTCTGCAGAAGCAGGTGGGG
ACCCCCGACTCCCTGGACTCCCTGGACATCCCATCCTCAGCCAGTGATGGTGGCTATGAGGTCTTCAGCCC
GTCGGCCACTGGCCCCTCTGGAGGGCAGCCCCGAGCGCTGGACAGTGGCTATGACACCGAGAACTATGAGT
CCCCTGAGTTTGTGCTCAAGGAGGCGCAGGAAGGGTGTGAGCCCCAGGCCTTTGAGGAGCTGGCCTCAGAG
GGTGAGGGCCCCGGCCCCGGGCCCGAGACGCGGCTCTCCACCTCCCTCAGTGGCCTCAACGAGAAGAATCC
CTACCGAGACTCTGCCTACTTCTCAGACCTGGAGGCTGAGGCCGAGGCCGAGGCCACCTCAGGCCCAGAGA
AGAAGTGCGGCGGGGACCAAGCCCCCGGGCCAGAGCTGGACCTGCCGAGCACTGGGCAGCCGTCTGAGCAG
GTCTCCCTCAGGCCTGGGGTTTCCGGGGAGGCACAAGGCTCTGGCCCCGGGGAGGTGCTGCCCCCACTGCT
GCGGCTTGAAGGATCCTCCCCAGAGCCCAGCACCTGCCCCTCGGGCCTGGTCCCAGAGCCTCCGGAGCCCC
AAGGCCCAGCCGAGGTGCGGCCTGGGCCCAGCCCCAGCTGCTCCCAGTTTTTCCTGCTGACCCCGGTTCCG
CTGAGATCAGAAGGCAACAGCTCTGAGTTCCAGGGGCCCCCAGGACTGTTGTCAGGGCCGGCCCCACAAAA
GCGGATGGGGGGCCTAGGCACCCCCAGAGCCCCACTCCGCCTGGCTCTGCCCGGCCTCCCTGCGGCCTTGG
AGGGCCGGCCGGAGGAGGAGGAGGAGGACAGTGAGGACAGCGGCGAGTCTGACGAGGAGCTCCGCTGCTAC
AGCGTCCAGGAGCCTAGCGAGGACAGCGAAGAGGAGGCGCCGGCGGTGTCCCGTGGTGGTGGCTGAGAGCCA
GAGCGCGCGCAACCTGCGCAGCCTGCTCAAGATGCCCAGCCTGCTGTCCGAGGCCTTCTGCGAGGACCTGG
AACGCAAGAAGAAGGCCGTGTCCTTCTTCGACGACGTCACCGTCTACCTCTTTGACCAGGAAAGCCCCACC
TGGGAGCTCGGGGAGCCCTTCCCGGGCGCCAAGGAATCGCCCCCCACGTTCCTTAGGGGGAGCCCCGGCTC
TCCCAGCGCCCCCAACCGGCCGCAGCAGGCTGATGGCTCCCCAAATGGCTCCACAGCGGAAGAGGGTGGTG
GGTTCGCGTGGGACGACGACTTCCCGCTGATGCCGGCCAAGGCAGCCTTCGCCATGGCCCTAGACCCGGCC
GCACCCGCCCCGGCTGCGCCCACGCCC******GCTCCCTTCTCGCGCTTCACGGTGTCGCCCGCGCCCAC
GTCCACGTCCCGCTTCTCCATCACGCACGTGTCT (SEQ ID NO:17)

Figure 15A

GCTCCCTGCCTGGTTACACCCTCCTGGACAGAGACAGACGGTAGTGGGGGTGACCACCCGCAGGCAGAGCC
CAAGCTTGCCACGGAGGCTGAGGGCACTGCCGGACCCCGCCTGCCCCTTCCTTCCGTCCCCTCCCCATCCC
AGGAGGGAGCCCCACTTCCCTCGGAGGAGGCCAGTGCCCCCGACGCCCCTGATGCCCTGCCTGACTCGCCC
ACGCCTGCTACTGGTGGCGAGGTGTCTGCCACCAAGCTGGCTTCCGCCCTGAATGGCAGCAGCAGCTCTCC
CGAGGTGGAGGCACCCAGCAGTGAGGATGAGGACACGGCTGAGGCAACCTCAGGCATCTTCACCGACACGT
CCAGCGACGGCCTGCAGGCCGAGAGGCAGGATGTGGTGCCAGCCTTCCACTCTCTGCAGAAGCAGGTGGGG
ACCCCCGACTCCCTGGACTCCCTGGACATCCCGTCCTCAGCCAGTGATGGTGGCTATGAGGTCTTCAGCCC
GTCGGCCACGGGCCCCTCTGGAGGGCAGCCCCGAGCGCTGGACAGTGGCTATGACACCGAGAACTATGAGT
CCCCTGAGTTTGTGCTCAAGGAGGCGCAGGAAGGGTGTGAGCCCCAGGCCTTTGCGGAGCTGGCCTCAGAG
GGCGAGGGC******CCCGGGCCCGAGACGCGGCTCTCCACCTCCCTCAGTGGCCTCAACGAGAAGAATCC
CTACCGAGATTCTGCCTACTTCTCAGACCTGGAGGCT******GAGGCCGAGGCTACCTCAGGCCCAGAGA
AGAAGTGCGGTGGGGACCAAGCCCCCGGGCCAGAGCTGGGCCTGCCGAGCACTGGGCAGCCGTCTGAGCAG
GTCTCCCTCAGTCCTGGGGTTTCCGTGGAGGCACAAGGCTCTGGCCCCGGGGAGGTGCTGCCCCCACTGCT
GCGGCTTGAAGGGTCCTCCCCAGAGCCCAGCACCTGCCCCTCGGGCCTGGTCCCAGAGCCTCCGGAGCCCC
AAGGCCCAGCCGAGGTGCGGCCTGGGCCCAGCCCCAGCTGCTCCCAGTTTTTCCTGCTGACCCCGGTTCCG
CTGAGATCAGAAGGCAACAGCTCTGAGTTCCAGGGGCCCCCAGGACTGTTGTCAGGGCCGGCCCCACAAAA
GCGGATGGGGGGCCCAGGCACCCCCAGAGCCCCACACCGCCTGGCTCTGCCCGGCCTCCCTGCGGCCTTGG
AGGGCCGGCCGGAGGAGGAGGAGGAGGACAGTGAGGACAGCGACGAGTCTGACGAGGAGCTCCGCTGCTAC
AGCGTCCAGGAGCCTAGCGAGGACAGCGAAGAGGAGGCGCCGGCGGTGCCCGTGGTGGTGGCTGAGAGCCA
GAGCGCGCGCAACCTGCGCAGCCTGCTCAAGATGCCCAGCCTGCTGTCCGAGGCCTTCTGCGAGGACCTGG
AACGCAAGAAGAAGGCCGTGTCCTTCTTCGACGACGTCACCGTCTACCTCTTTGACCAGGAAAGCCCCACC
CGGGAGCTCGGGGAGCCCTTCCCGGGCGCCAAGGAATCGCCCCCCACGTTCCTTAGGGGGAGCCCCGGCTC
TTCCAGCGCCCCCAACCGGCCGCAGCAGGCTGATGGCTCCCCAAATGGCTCCACAGCGGAAGAGGGTGGTG
GGTTCGCGTGGGACGACGACTTCCCGCTGATGCCGGCCAAGGCAGCCTTCGCCATGGCCCTAGACCCGGCC
GCACCCGCCCCGGCTGCGCCCACGCCC******GCTCCCTTCTCGCGCTTCACGGTGTCGCCCGCGCCCAC
GTCC::::::CGCTTCTCCATCACGCACGTGTCT (SEQ ID NO:18)

Figure 15B